IN THE CLAIMS:

1. (Currently Amended) A method for use in non-invasively monitoring a physiological parameter of a patient, comprising the steps of:

obtaining a time-based photoplethysmographic ("pleth") signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first component associated with the operation of the patient's respiratory system and a second Mayer wave component associated with the patient's autonomic nervous system;

~~processing~~ transforming said time-based pleth signal into a frequency domain to obtain spectral information including information associated with ~~relative to~~ said first component and said second Mayer wave components;

processing said spectral information to distinguish an effect associated with one of said first component and said second Mayer wave components from an effect associated with the other of said components; and

using said distinguished effect to monitor said physiological parameter.

2. (New) A method as set forth in Claim 3, further comprising:

providing an output related to said Mayer Wave

3. (New) A method as set forth in Claim 2, wherein said step of providing an output comprises providing a graphical output that shows at least one of an amplitude and a frequency of the Mayer Wave.

4. (New) A method as set forth in Claim 7, further comprising monitoring one of said amplitude and said frequency over time to detect a variation of interest.

5. (New) A method as set forth in Claim 1, wherein said step of processing comprises extracting information regarding at least one of an amplitude and a frequency of a Mayer Wave.

6. (New) A method as set forth in Claim 5, wherein said step of processing comprises filtering the spectral information to extract information regarding the Mayer Wave.

7. (New) A method as set forth in Claim 6, wherein said step of filtering comprises band pass filtering the spectral information using a frequency band that passes a spectral peak of said spectral information located between about 0.05 Hz and 0.5 Hz.

8. (New) A method as set forth in Claim 1, further comprising:

processing said spectral information to identify a variation in blood volume.

9. (New) A method as set forth in Claim 1, wherein said step of processing comprises first analyzing said spectral information to obtain heart rate information.

10. (New) A method as set forth in Claim 9, wherein said step of processing further comprises monitoring said heart rate information over time to obtain a time series of heart rate values.

11. (New) A method as set forth in Claim 9, wherein said step of processing further comprises second analyzing said heart rate information to obtain information regarding heart rate variability.

12. (New) A method as set forth in Claim 9, wherein said heart rate information comprises a time series of heart rate values and said step of processing further comprises filtering said time series of heart rate values to identify a low frequency variability therein.

13. (New) A method as set forth in Claim 12, wherein said low frequency variability is in the range between about 0.05 Hz and 0.5 Hz.

14. (New) A method for use in monitoring a patient comprising the steps of:

obtaining a time-based photoplethysmographic ("pleth") waveform signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first component associated with the autonomic nervous system of the patient;

transforming said time-based pleth waveform signal into a frequency domain to obtain a spectral information signal associated with said first component;

processing said spectral information associated with said first component signal to obtain information regarding a low frequency blood volume variation of said patient, said low frequency blood volume variation relating to a spectral peak of said spectral information signal located between about 0.05 Hz and 0.5 Hz; and

monitoring said low frequency blood volume variation over time to identify a characteristic of interest.

15. (New) A method as set forth in Claim 14, wherein said step of processing comprises band pass filtering the spectral information signal using a frequency band that passes a spectral peak of the spectral information signal located between about 0.05 Hz and 0.5 Hz.

16. (Previously Amended) A method as set forth in Claim 14, wherein said step of processing comprises band pass filtering the spectral information signal using a frequency band that

passes a spectral peak of the spectral information signal located at about 0.1 Hz.

17. (Original) A method as set forth in Claim 14, further comprising the step of providing a graphical output that shows at least one of an amplitude and a frequency of the low frequency blood volume variation.

18. (Original) A method as set forth in Claim 17, wherein said step of monitoring comprises monitoring one of said amplitude and said frequency over time to detect a variation of interest.

19. (New) An apparatus for use in monitoring a patient, comprising:

a port for receiving a time-based photoplethysmographic ("pleth") waveform signal that is modulated based on interaction of a transmitted optical signal with blood of said patient, wherein said pleth signal includes at least a first component associated with the patient's autonomic nervous system;

a processor for first processing said time-based pleth waveform signal to generate a frequency-based spectral information signal and for second processing said spectral information signal to identify an effect related to the autonomic nervous system; and

an output device for providing an output related to said autonomic nervous system.

20. (New) An apparatus as set forth in Claim 19, wherein said processor is operative for identifying an effect related to a Mayer Wave.

21. (New) An apparatus as set forth in Claim 19, wherein said processor is operative to filter the spectral information signal to extract information regarding the Mayer Wave.

22. (New) An apparatus as set forth in Claim 19, wherein said processor is further operative for identifying a variation in blood volume.